

**REMARKS**

**I. Introduction**

In response to the pending Office Action, Applicants have amended claim 1 to further clarify the scope of the invention. Applicants have also added new claims 17-19. Support for amended claim 1 may be found, for example, in original claim 1 and page 18, line 20 to page 19, line 10 and page 20, line 25 to page 21, line 4 of the specification. Support for new claims 17-18 may be found for example, on page 16, lines 3-7 and Fig 3. Support for new claim 19 may be found for example, on page 16, lines 8-13 and Fig 3. No new matter has been added. Entry of the foregoing amendment is respectfully requested.

For the reasons set forth below, Applicants respectfully submit that all pending claims are patentable over the cited prior art.

**II. The Rejection Of Claims 1-4 And 6 Under 35 U.S.C. § 102**

Claims 1-4 and 6 were rejected under 35 U.S.C. § 102(b) as being anticipated by Shiono et al. (JP 2001-319935) and under § 102(a) as being anticipated by Yokoyama et al. (JP 2002-026027. Claims 1-4 were rejected under § 102(e) as being anticipated by Chantre et al. (U.S. 6,551,891). Applicants respectfully submit that each of Shiono et al., Yokoyama et al. and Chantre et al. fail to anticipate the pending claims for at least the following reasons.

With regard to the present invention, newly amended claim 1 recites, in-part, a semiconductor device comprising ... a first semiconductor film having substantially the same composition as the buffer layer and a second semiconductor film having substantially the same composition as the semiconductor layer, *wherein the first semiconductor film has a thickness*

*smaller than the buffer layer and the second semiconductor film has substantially the same thickness as the semiconductor layer.* The result of this limitation, as shown in Fig. 1, is that the buffer layer 7 having a Si composition higher than the semiconductor layer 5 is formed prior to the formation of the semiconductor layer 5 above the single crystalline underlying layer formed in part of the substrate 3, and thus the first semiconductor film 5 is formed on the insulating layer 4. Therefore, it is possible to improve the non-selectivity of epitaxial growth of the second semiconductor film 6 which is formed during the formation of the semiconductor layer. Thus, the polycrystalline layer 8 having a relatively large thickness can be obtained.

In contrast to the present invention, Shiono discloses that the first  $\text{Si}_{(1-x)}\text{Ge}_x$  film 9 and the second  $\text{Si}_{(1-y)}\text{Ge}_y$  film 10 are formed in the base window part 7 as an epitaxial layer of a single crystal, and are formed on the first  $\text{SiO}_2$  layer 6 as a non-epitaxial layer of polycrystal (see, paragraph [0026] and Fig. 2). However, Shiono fails to disclose or suggest any relationship between the first  $\text{Si}_{(1-x)}\text{Ge}_x$  film of a single crystal 9 and the first  $\text{Si}_{(1-x)}\text{Ge}_x$  film of polycrystal 9, and between the second  $\text{Si}_{(1-y)}\text{Ge}_y$  film of a single crystal 10 and the second  $\text{Si}_{(1-y)}\text{Ge}_y$  film of polycrystal 10 with regard to the thickness. Thus, Shiono fails to disclose that the first semiconductor film has a thickness smaller than the buffer layer or that the second semiconductor film has substantially the same thickness as the semiconductor layer.

Furthermore, Yokoyama et al. discloses that the p-type single crystal Si film 121 having a thickness of about 10 nm is grown on the component formation field and the p-type polycrystal Si film 122 having a thickness of about 10 nm is formed on the component isolation region 110 (silicon oxide layer) (see, Fig. 6). In addition, Yokoyama discloses that the p-type single crystal SiGe film 132 having a thickness of about 50 to 100 nm is grown on the p-type single crystal Si film 121 and the p-type polycrystal SiGe film 133 having a thickness of about 50 to 100 nm is

formed on the p-type polycrystal Si film 122. Thus, the p-type single crystal Si film 121 has the same thickness as the p-type polycrystal Si film 122. Therefore, Yokoyame fails to disclose that the first semiconductor film has a thickness smaller than the buffer layer.

Finally, Chantre et al. discloses that the undoped Si layer 80 is epitaxially grown across the n-type monocrystalline silicon layer 4 and the lateral isolating region 5 and the p-type SiGe layer 81 is epitaxially grown on the undoped Si layer 80 (see, Fig. 2). However, Chantre fails to disclose or suggest any relationship between the undoped Si layer 80 on the n-type monocrystalline silicon layer 4 and the undoped Si layer 80 on the lateral isolating region 5, or between the p-type SiGe layer 81 on the n-type monocrystalline silicon layer 4 and the p-type SiGe layer 81 on the lateral isolating region in view of the thickness. Thus, Chantre fails to disclose that the first semiconductor film has a thickness smaller than the buffer layer and the second semiconductor film has substantially the same thickness as the semiconductor layer.

As anticipation under 35 U.S.C. § 102 requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference, *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983), and at a minimum, neither Shiono, Yokoyama nor Chantre discloses that the first semiconductor film has a thickness smaller than the buffer layer and the second semiconductor film has substantially the same thickness as the semiconductor layer, it is clear that Shiono, Yokoyama and Chantre do not anticipate claim 1, or any claim dependent thereon.

### **III. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable**

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are

contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 1 is patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

**IV. Conclusion**

Having responded to all open issues set forth in the Office Action, it is respectfully submitted that all claims are in condition for allowance.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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